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Ranjana Negi
PG Department of Shalakya Tantra, Rishikul Campus, Uttarakhand Ayurveda University, Dehradun, Uttarakhand, India

Gunjan Sharmaa
Professor and HOD, PG Department of Shalakya Tantra, Rishikul Campus, Uttarakhand Ayurveda University, Dehradun, Uttarakhand, India

Correspondence:
Prof Gunjan Sharma
Professor and HOD, PG Department of Shalakya Tantra, Rishikul Campus, Uttarakhand Ayurveda University, Dehradun, Uttarakhand, India
Email: gunjan06purity@gmail.com

Analytical Study of Yashtayadi Lepa in Vidalaka Karma

*Ranjana Negi, *Gunjan Sharmaa*

Abstract

Lepa is considered as an important and initial *chikitsa* in reference with *Vranashotha chikitsa* described by Acharya *Sushruta* [1] and when the *lepa* is applied around the eyes it is termed as *Vidalaka*. It is indicated in acute inflammatory conditions of eyes such as *daha* (burning sensation), *updeha* (discharge), *ashru* (watering) *shopha* (swelling) and raga (redness) [2]. *Vidalaka* is a topical therapy, applied to the outer surface of the eyelids leaving the eyelashes [3], used in many eye diseases like *Anjananamika* (Hordeolum) and *Abhishyanda* (Conjunctivitis). *Yashtayadi lepa* is one of such compounds for *Vidalaka* Karma mentioned by Acharya *Sharangadhara* in *Sharangadhara Samhita* and described as *Sarvanetrarujahara* Yoga. It consists of *Yastimadhu, Gairika, Saindhav, Daruharidra* and *Rasanjana* as its main ingredients. *Rasanjana* and *Daruharidra* are the major drugs that help in alleviating the acute conditions of eyes [4]. The combined effect of this *lepa* has *Netrarujanashaka* (analgesic), *Netrakandunashak* (anti-pruritic), *Vrananashaka* (anti-bacterial), *Vedanasthapaka* (soothing) and Shophanashaka (anti-inflammatory) properties and are predominantly works on vitiated pitta and rakta. With this background the present study was undertaken to analyze *Yashtayadi lepa* in one of the ocular diseases and presence of its components as recommended in Ayurvedic Pharmacopoeia of India (API) through pharmacognostical study and physicochemical analysis.

Keywords: *Lepa, Vidalaka, Shophanashaka, Yashtyadi*.

INTRODUCTION

Kriyakalpa has been described as local therapeutic ocular procedure in *Shalakya Tantra* and it has immense potential to many diseases of eyes [5]. Various *Kriyakalpa* procedures are described in classical texts and are applied according to the disease type and its stage and *Vidalaka* is one of the therapies described for acute conditions of eyes by *Acharya Sharangdhara* [6]. Different drug formulations have been described in various ancient texts and *Yashtyadi Lepa* is one of such compounds which is given by *Acharya Sharangdhara* as *Sarvanetramayahara Yoga* in *Netrprasadana* chapter of Uttar Khand [7]. The contents of the *Lepa* have the properties like *Vednanashaka* and *Vranashophhara* which help in residing the signs and symptoms of acute inflammatory conditions of eyes. All the contents are used in powdered form to make a paste out of it and applied in the form of *Vidalaka* around the eyes leaving the eyelashes. This present study is aimed at to develop a local therapeutic formulation which has potential to relieve the disease and to provide quality standardization of drug through recommended analytical tests.

MATERIALS AND METHODS

Aims and objective

1. To analyze the physicochemical and pharmacognostical character of drug.

Collection of raw materials

The raw drugs for the study were procured from Hansa Pharmacy Sidicul, Haridwar Uttarakhand. *Rasanjana* was prepared in the Hansa Pharmacy Sidicul, Haridwar Utterakhand. **(Table 1)**

Identification and Authentification

The raw drugs were identified and authentified by PG Department of *Dravya Guna*, Rishikul campus, Haridwar. The minerals for *Yashtyadi Lepa* after preparation were identified and authentified by

PG Department of *Rasa Shashtra and Bhaishjya Kalpana,* Rishikul Campus, Haridwar.

Method of preparation of Yashtayadi Lepa

The herbal ingredients were taken in their crude form and washed with clean water to remove the dirt and mud and then dried in sunlight for 7 days. The dried herbs and *Gairika, Saindhav Lavana* was made fine coarse powder in 1:1 ratio. *Gairika* was purified with *Goghrita* by *Ghrit Bhrinjana* process and added to the mixture in equal amount ratio.

Rasanjana was prepared by *Ghanasatwa* method at Hansa Pharmacy Sidicul, Haridwar Uttarakhand. For this insect free *Daruharidra moola* was taken from its natural habitat in Pauri Garhwal and dried in the sunlight for seven days. The dried wood was then taken to Hansa Pharmacy Sidicul, Haridwar Uttarakhand for *Yavakuta* and 8 kg was obtained for preparation of *Rasanjana*. *Yavakuta Daruharidra* then washed thoroughly and soaked in 16 times water (128 liters) as mentioned in *Bhavprakash* for 12 hours. Soaked *Daruharidra* then subjected to medium flame for *Kwath* preparation. It was reduced to ¼ (32 liters) and then this part of decoction was filtered and allowed to sediment for 12 hours. The sedimented portion was left and the clear portion was again boiled till it become thicker like *Lehakalpna* as mentioned in *Sharangdhara Samhita* and around 500-gram *Ghansatwa* was obtained. After that all that *Ghanasatva* was dried into tray drier at temperature 35-40 degree Celsius and then powdered.

Pharmacodynamics of *Yashtyadi Lepa*

The mode of action of and their physiological effect can be better disclosed by the properties of physiochemical factors of their contents i.e. *rasa, guna, virya, vipaka* and *Dosha-shamakta*. **(Table 2)**

Analytical study

The final products of *Yashtyadi Lepa* was analysed by implementing a number of analytical parameters.

Organoleptic study

Organoleptic characters like texture, taste, odour and colour etc**.** of Yashtyadi Lepa was evaluated in this study. **(Table 3)**

Physico-chemical analysis of Drug[8]

As per the API guideline, *Yashtyadi lepa* was analyzed by using qualitative and quantitative parameters at Multani Pharmaceuticals Ltd Bhagwanpur, Haridwar.

Physico-Chemical Parameters

Yashtyadi lepa was analyzed using various standard physico-chemical parameters such as Loss on drying, Ash value, Water extract value, Alcohol extract value and pH. The results are shown in **Table 4**.

Microbiological Limit Test

This test reveals total bacterial count and total yeast and mould count in cfu/g. Also reveals presence of another specific pathogen which was negative. **(Table 5)**

RESULT

Socio-demographic factors

A total of 128 respondents were included with response rate of 100%. Among those, 64 were control and 64 were case group. More than half of respondents were male in both groups (Table 1).

Therapy and Patient-related factors

More than half of respondents in both case 51(79.7%) and control 50(78.1%) group had awareness of tuberculosis. However, 1(1.6%) of control group did not know the duration of tuberculosis treatment compared to 23(35.9%) case. (Table 2).

Table 1: Ingredients of *Yashtyadi lepa*

Name of Drug	Latin Name	Part used	Ratio	Form
Yastimadhu	*Glycyrrhiza glabra*	Root	1 part	Choorna
Daruharidra	*Berberis aristata*	Root	1 part	Choorna
Saidhava Lavana	*Sodium Chloride*	Whole	1 part	Raw form
Gairika	*Iron oxide* (sometime contains titanium & magnesium)	Whole	1 part	*Ghrita- bhranjita*
Rasanjana	Extract of *Berberis Aristata*	Root	1 part	*Ghana-satva*

Table 2: Pharmacodynamics of *Yashtyadi lepa*

Dravya	Rasa	Guna	Virya	Vipaka	Dosha Shamkta
Yashtimadhu	*Madhura*	*Guru, Snigdha*	*Sheeta*	*Madhura*	*Vaat-Pitta shamak*
Daruharidra	*Kashaya, Tikta*	*Laghu, Ruksha*	*Ushna*	*Katu*	*Kaph-Pitta shamak*
Saindhava lavana	*Lavana, Madhura*	*Kinchita Guru, Snigdha, Teekshna*	*Ushna*	*Katu*	*Tridosha Shamaka*
Gairika	*Kshaya- Madhura*	*Snigdha*	*Sheeta*	*Madhura*	*Pitta-Kapha Shamaka*
Rasanjana	*Tikta, Kshaya*	*Laghu, Ruksha*	*Ushna*	*Katu*	*Kapha-Pitta Shamaka*

Table 3: Organoleptic Properties of *Yashtyadi lepa*

Rupa (colour)	Reddish Brown
Rasa (Taste)	Sweet, Salty
Gandha (Odour)	Sweet, Sour
Sparsha (Consistency in Touch)	Fine Powder

Table 4: Physico-chemical Analysis of *Yashtyadi lepa*

Parameters	***Yashtyadi lepa***
pH (10% Aqueous solution)	5.65
Total ash (%w/w)	48.4
Water soluble extractive (%w/w)	42.82
Alcohol soluble extractive (%w/w)	13.5

Table 5: Microbiological Limit Test

Micro-oraganisms	***Yashtyadi lepa***
Total bacterial count(cfu/g)	800
Yeast and mould count (cfu/g)	200
E coli	Absent
Staphylococcus aureus	Absent
Pseudomonas aeroginosa	Absent
Salmonella sp.	Absent

Health care system factors

Majority of participants, 59 (92.2%) of case compared to 62(96.9%) control group had good relation with staff during tuberculosis treatment. Among case group, 55(85.9%) did not need public transport from treatment place compared to 57(89.1%) control group. (Table 3).

Factors associated with defaulting TB treatment

Association of educational level, occupational status, knowledge of TB symptom, treatment phase, experience of stigmatization, and TB type/category was assessed with TB treatment default through bivariate analysis. Unawareness of tuberculosis treatment period [COR =26.6(95% CI= 3.44-205] and stigmatization [COR =0.14(95% CI =0.04-0.49] were associated with default (Table 4).

Predictors of defaulting TB treatment

House status, knowledge of treatment period, experience of stigmatization was found significantly associated with defaulting treatment in bivariate analysis and found to be independent predictors of defaulting TB treatment. Participants who live in rented house were 4.12 times more likely to default as compared to participants who live in their own house [AOR (95%CI) = 4.12 (1.1- 15.4)]. Participants who live in relative house were 42.7 times more likely to default as compared to live in their own house [AOR (95%CI) = 42.7(8.5-213)]. Participants who hadn't experience of stigma was found to decrease odds of defaulting as compared to participants who had experience of stigma [AOR (95%CI) = 0.1(0.03-0.44)]. Participants who had no awareness of tuberculosis treatment period were 22 times more likely to default as compared to participants who had awareness [AOR (95%CI) = 22.6 (4.3-118)] (Table 5).

Thin layer Chromatoghraphy (TLC) of *Rasanjana*

It was carried out at 254 and 366 nm UV to establish finger printing profile. It has revealed RF values 0.622, 0.530, 0.397, and 0.316 which can be concluded to responsible for its pharmacological and clinical actions. **(Figure 1)**

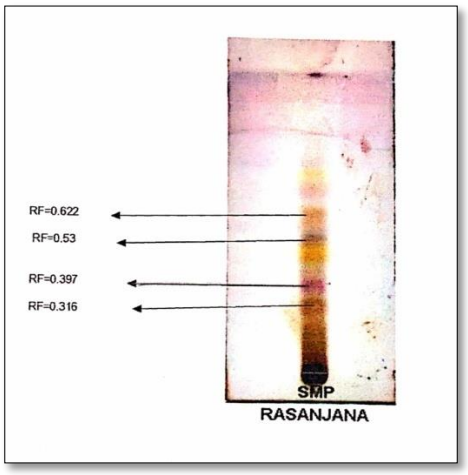

Figure 1

DISCUSSION

Yashtyadi lepa is one such formulation explained in *Sharangdhara Samhita*, which is said to be useful in inflammatory signs and symptoms of eye i.e. *sopha, ruja, daha, raga* etc.which are more commonly found in *vranasophas* of *netras*.All the pharmaceutical parameters analyzed showed values permissible for the *churna*. The Physico-chemical parameters show that percentage of alcohol soluble material is more than water soluble extract. It also shows presence of slightly acidic nature of *Churna* which may help in augmenting the function of *Brajaka Pitta* ultimately work as a transdermal action.TLC is the most common form of chromatographic method used by Ayurvedic research workers to detect the number of compounds present in a product. It also helps to determine the purity of the sample. The results show that the active phytoconstituents are slight equaled sensitive for both UV radiation i.e. 254 nm & 366.

CONCLUSION

The contents of *Yashtyadi lepa* are predominantly *pittashamaka*, works on vitiated *pitta* and *rakta* and majority have haemostatic activity. Preliminary organoleptic features and results of microscopy were cross verified with individual raw drug of *Yashtyadi lepa* with the parameters mentioned in Ayurvedic Pharmacopeia of India and all the ingredients were proved to be authentic. Pharmacognostical evaluation of Yashtyadi lepa illustrated the specific characters of all ingredients which were used in the preparation. In physico-chemical analysis, water soluble and alcohol soluble extract, pH, Ash values were assessed. So, the pharmacognostical and phyto-chemical analysis of *Yashtyadi lepa* provides substantial information for the proper identification, authentication, and scientific evaluation of the final product/drug. On the basis of observations made and results of studies, this study may be beneficial for future researchers and can be used as a reference standard in the further quality control researches.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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